

## AMENDMENTS TO THE CLAIMS

1. (Previously presented) A method of communicating over a wireless indoor telecommunications channel, the method comprising the steps of:

generating a pulsed signal in which information is carried in the phase of the pulsed signal;

spreading the pulsed signal using a dispersive filter to form a chirp spread spectrum signal;

transmitting the chirp spread spectrum signal over a wireless indoor telecommunications channel;

receiving the chirp spread spectrum signal at a receiver;

despreading the chirp spread spectrum signal using an inverse dispersive filter that is matched to the dispersive filter to yield a received signal;

removing the phase of the received signal, using a phase demodulator, thereby generating cophased channel impulse responses;

passing the cophased channel impulse responses through a low-pass filter to generate data symbols; and

recovering the information carried in the phase of the pulsed signal from the generated data symbols.

2. (Original) The method of Claim 1 in which generating a pulsed signal comprises: modulating a data signal onto a carrier using a phase differential modulator; and converting the modulated carrier into a pulsed signal.

3. (Original) The method of Claim 1 in which the chirp signal is generated using plural dispersive filters, each assigned to a particular symbol value, and the chirp spread

spectrum signal is despread using plural inverse dispersive filters matched to corresponding ones of the plural dispersive filters.

4. (Cancelled)

5. (Original) The method of Claim 1 in which the dispersive filter is a SAW filter.

6. (Previously presented) The method of Claim 1 in which recovering the information carried in the phase of the pulsed signal comprises applying an equalizer to the cophased channel impulse responses to reduce intersymbol interference caused by the channel multipath.

7. (Currently amended) The method of Claim 6 in which applying [[an]] the equalizer to the pulsed signal comprises training the equalizer with a slow phase demodulator and applying the equalizer to the cophased channel impulse responses after demodulation with a fast phase demodulator.

8. (Previously presented) A transmitter for communicating over a wireless indoor communications channel, the transmitter comprising:

a pulsed signal generator;

a dispersive filter bank comprising plural filters, the dispersive filter bank being connected to receive a pulsed signal from the pulsed signal generator, where the excitation of each of the plural filters corresponds to a different transmitted symbol value, the output of the dispersive filter bank being a chirp spread spectrum signal; and

an RF section for upconverting the chirp spread spectrum signal for transmission.

9. (Original) The transmitter of Claim 8 in which the pulsed signal generator comprises:

a data source;

a differential phase modulator connected to receive data from the data source; and

an RF pulse generator connected to receive a modulated signal from the differential phase modulator.

10. (Cancelled)

11. (Previously presented) A receiver for communicating over a wireless indoor communications channel with a transmitter defined by Claim 8, the receiver comprising:

an RF receiving section configured to produce a received chirp spread spectrum signal as output;

an inverse dispersive filter matched to the dispersive filter in the transmitter and connected to receive the chirp spread spectrum signal from the RF receiving section and generate a received pulsed signal;

a phase demodulator connected to the inverse dispersive filter, the phase demodulator generating cophased channel impulse responses from the received pulsed signal;

a low-pass filter on the output of the phase demodulator for generating data symbols from the cophased channel impulse responses; and

a data extractor connected to the low pass filter, the data extractor recovering originally transmitted information from the data symbols and having data as output.

12. (Cancelled)

13. (Previously presented) The transmitter of Claim 8 in which the excitation of the plural filters is controlled by a signal from a data source.